

June 6, 2023 | STAC Subcommittee Kickoff (including DJ edits)

Attendees: Mark Nardi (Subcommittee Chair, STAC Member, USGS MD-DE-DC Water Science Center), Bart Wilson (Geomorphologist, FWS), Lesley Baggett (Environmental Consultant, AKRF), Doug Janiec (STAC Vice Chair/Restoration Ecologist, Sovereign Consulting), David Krantz (Oceanographer and Coastal Geologist, University of Toledo), Taylor Krolik (EPA R3 Standards and Coordination, Delaware State Representative), Meghan Noe Fellows (Director of Science and Restoration, CIB), Natalie Motley (EPA)

Non-attending members: Kelly Somers (EPA Region, Support staff)

US Wind:

Ashley Himmelstein (RCGA)

James Schmidt (RCGA)

Horst Moll

Kaneko Azuma

Katherine Palmquist

Matt Hodge

Matt Ladeqig - TRC

Sofie Chernoch

Laurie Jodziewicz

Mike Dunmyer

Todd Sumner

Kristen Bachand - TRC

Mike Feinblatt - TRC

William Bailey ?

Center Staff:

Anna Fagan

Lisa Swanger

Michelle Schmidt

Zach Garmoe

Mark Carter

Nivette Perez-Perez

Bryanna Lisiewski

Introductions: Mark welcomed the team

Introduction of the STAC members present

USWind Presentation of Prepared Slide Deck

Mike Dunmyer introduced as the primary contact, open to further conversation - today is just a start

Description of the project:

80,000 acre lease area, north to Fenwick - 1100 Megawatts, 340,000 homes, 76 turbines, - $\frac{2}{3}$ of lease area, build south north - more area to develop; intend to permit the entire area now, but build out in phases

If full - 121 turbines, 4 stations

Although over 100 miles of shoreline evaluated, 2 potential points of landfall were identified: 3 Rs beach, Tower beach - multiple corridors to get to Dagsboro
Sussex County sites, most technically feasible, shortest, most reliable

Preferred path - 3 Rs, through Indian River, underground infrastructure, substation in Dagsboro

- Least disruptive, safe and responsible, remove some legal issues on terrestrial approaches
- Feasibility analysis with underwater cable installers ongoing
- Working in designated utility rights of way - resistance; future development conflicts
- Can bury to a safe depth 1-3m under navigation channels
- Maybe take two seasons - quicker and less time of impact
- Horizontal directional drilling within 1000 feet of wetlands
- Analyzing multiple routes within Indian River Bay

US Wind shared a video of the proposed process, identifying a west to east layout; time of year; and what it looks like when finally built

Discussion Today:

Question and answer/discussion with member of the STAC asking questions; US Wind staff answering with their expertise. Where possible, I tried to attribute speaker in the following paraphrased transcript - not a 100% word for word transcript below:

David- What is the design timeline - 25, 50, 100 years?

Laurie - life of project 25-30 years for turbines; MD contract is 20 years; BOEM requirement, everything removed at end of project - may be better to leave cables in place

David - follow-up, assume 25 years - potential is up to 4 cables; do they require maintenance in any time frame, and how?

Laurie - planning on maintenance free for timeframe; should there be need, there is 10 m spacing between in case. Individual cable would be pulled up.

Horst - occasional surveys to understand if cables still buried

Doug- is there a cross section of the cable

Laurie - in volume 1 of COP

Horst - 3 conductors, between them, pillars to hold at spacing, copper tube fiber optic lights for communication, steel armor and pvc over top

Doug - any dummy cables for expansion? Or rent to others

Laurie - not planning on any additional ones; plan to use all 4

Doug - so the initial construction corridor is 200m of disturbance?, cables spaced at 40 meters, (4 cables at 10 m spacing); plus a footprint of 250 feet on either side of cables - temporary disturbance

David - does initial construction effort cover all 4 cables; done by US wind vs. other companies

Laurie - wind farm in sections; but cables and drilling in one - two seasons, September to May (ish) - complete all 4 in the same season.

Mark N - will other companies use same cables?

Laurie - can't speak to other plans, but they would use their own cables; could end up at same power station

Mike - multiple projects could connect to Dagsboro - but physical limitations in width of bay; may limit other's access

David - asked for clarification of offshore capacity; how much to expect

Mike - 1800-2000 MW; Orsted could put in another 1000 MW

Mark N - can this get all done at once, to minimize disturbance

Laurie - US Wind 2 years in advance of Orsted, so hard to combine efforts;

Mike - to have all offshore wind come in at fewest cables would need offshore 'bridge' which would be significant structure 1 mile offshore

David - DC or AC power?

Horst - turbines generate AC power

Doug - actual installation? Running 4 times across the bay? Or do all 4 at once

Horst - cables installed sequentially; 100/300 foot barge, not possible to do in barge; 3Rs beach would be installed all at once

David - very few optimal places to come on shore; probably best option

Horst - Tower road would have a long land route; disturbance; indian river route seems least disruptive

Mike - 3Rs, have large parking lots for laydown areas; make limited options available.

Leslie - cable installation - legacy contaminants - contaminant transport study along sediment transport study

Laurie - not done yet; arsenic and nickel has been found; need to know if additional analytes

Mark N - sediment particle analysis only?

Laurie - mostly runoff related/sourced vs. power plant

David - do we know of any heavy metal analysis in the sediments prior to

Laurie - interested in Boron (associated with fly ash) also on COP

Mike - deep dive into sediment transport

Matt H. - shared sediment transport simulation - represented of the entire process; maximum extent that might occur; deposition and dispersion water column and estuary floor; highest along the cable route. Thicknesses of 1/2 mm should be within 100 m of route. Sediment plume <10 mg/L within 24 hours of passage of jet plow - additive to background TSS

Mark N - what is the change from background

Matt H. - truly fine particles will stay in water column longer than 24 hours; vibracores say majority of particles not truly fine

Describe modeling process: Hydrodynamic model using CMS Flow; particle tracking model; uses individual particles to be representative of grain sizes, fine clay to sand; amount consistent with in place sediments.

Matt H - hydrodynamic model is 2-D; modeling pixels - cubes can be anywhere in water column; less drift, distribute because of relatively shallow

Did not evaluate storm conditions - as they won't be installing during a hurricane; wind is a surface stress

David - construction question - what linear distance is covered in one day?

Horst - bury 5- 6 miles a day, do not expect dense/hard layers

Matt H - assumptions we used - jet plow progress 100 meters /hour

David - how long?

Horst - 2 sections of cable, minimize draft of barges; construction in 2 sections; probably 2-3 days; 1 week to splice

David - where splice point

Horst - approximately ½ way

Horst - water depth leads to relatively easy installation; southern route - more difficult; but probably less risk

David - avoid channel inlet

Horst - found features could move up to 30 meters a year

Laurie - was the southern route sensitive benthically? Evaluated both routes in case environmental no gos

Lesley - modeling study - dependent on jet plow; but COP says multiple methods; is jet plow worse case; or should you look at sediment transport with the methodology in the section of bay used

Horst- jet plow worst option; one other method vertical would allow a more controlled depth install; just finished investigations - will make decision on best method

Laurie - some changes to the COP; not planning on using tracked vehicles

Mark N - will there need to be dredging for the barge?

Laurie - depend on weight of cable; federal navigation channel; may need to install below depth of channel - may need to dredge first, then hydroplow

Horst - hydroplow can't get reliably deep enough without first dredging

The river section of the bay; just not wide enough to avoid channel - will have to go below channel

Matt L - benthic grab samples through north/south routes - 35 field samples; analyzed for fauna; grain size analysis; sand, transitional sediments and mud - did not encounter gravel, or cobble; did not see differences - mostly tolerant organisms; did encounter hard clams in some samples; dedicated shellfish survey in the eastern side - 1 m quadrats with bull rake; hit or miss; tried to align locations with DNREC (Bott and Long 2010) study, to compare

Laurie - no SAV or anything in this area?

Matt L - correct

Doug - how deep was the mud layer

Matt L - 10 cm?

Kristen - harder bottoms/sand closer to inlet, did not go as deep; 5-6 inches with rakes; same person raked each time

Lesley - photographic surveys?

Kristen - out in mid-August, too turbid

Matt - wanted to, but turbidity didn't allow it to happen

Mark N. - after November would be better

Doug - Description of surface sediments during the benthic survey- say fines on western side; but geotechnical survey used in the sediment transport model said fewer in that area. How thick is that mud level? Was that incorporated into the transport model

Horst - mud layer is pretty thick; top is so soft had hard time to determine water column end and mud start

Doug - if thick unconsolidated sediment layer; should be incorporated into sediment transport in some way - was that captured in the modeling effort?

Horst - don't know

Matt H - it is captured to some extent, but not explicitly; used vibracore samples new and 2017; more recent sediment data not; looked at 2 m

But vibracore might not have measured the liquid sediment layer - so would not be incorporated into the model

Doug - that could change the plume; whether thin or feet thick

David - predominant is silt; floc could be more of an issue upriver more

Laurie - take a look and see if there are tweaks? To take into account the emulsified overburden

- Challenge - how to quantify; someone will need to be measured
- Matt H. - also pretty complicated; because it won't behave like a sediment grain size; confidence level in available tools is lower
- Doug - at a minimum the transport model should have discussion (narrative) on this topic (acknowledge/characterize the presence of unconsolidated or loose mud layer and how this layer could influence model outputs and associated plume)

Mark N - in summer is most deposition of ultrafine

Prop wash - could be no worse than background with people running boats; or could be large

Laurie - any studies? Particularly time of year - ask BART

Mark N - look at CIB water monitoring data

Matt H - is this an additive? If same time - boat traffic likely minimal

David - construction to occur in cold season

Mike - also don't interfere with HSC spawning season

Lesley - understand BOEM wants off season; birds, bats, fish, etc.

Mark N - benthics up the indian river; crabbing; overwintering - any estimated impacts

Laurie - have not yet honed in on the impact

Mark N - same questions with spawning of fin fish

- Not right expert to talk about this

David - generally avoid summer; where do finfish overwinter
Mark N - april may; shad; crabs - may extend restrictions for winter behaviours
Lesley - what type of environmental monitoring will you be performing
Laurie - monitoring is focused offshore; commercial fishery; before during after construction
survey related to turbines; 11 million dollars of research; wildlife monitoring; not identified any
particular programs in the bay itself
EMF - compared modeled expected at burial depth with what is in known literature
All can sense magnetic fields
60 hz however cannot be detected; the actual organs to detect to geomagnetic field don't
work at the level expected
Tested on crabs/lobsters and shrimp - but not hsc specifically
If an organism can detect 0 hz; cannot detect higher frequencies
Mark N. - blue crab - overwintering crabs and buried cables;
Have done studies in field in Pacific; crabs specific, 60 hz ac; measured magnetic fields similar -
found no effect; neither attracted/repelled, multiple species
Doug - there are different kinds of jet plows. Presumably, each type may have a different level
of sediment disturbance. jet plows for installation; also what potential BMPs exist for jet plow
operations that can reduce the sediment plume
Horst - not at that point yet; have short-listed two potential contractors; once results from
geotech work, can dive into that more deeply
Laurie - ask for pluses and minus
Horst - minimize water rate to plow; minimize sediment
Doug - BMPs because bays are so much shallower - keep an open mind.

Mark N directions to the committee - prioritize biggest questions and where to dig into

Announcements:

Kelly sent along:

*****Please distribute to other interested parties.*****

[OCTO](#) is pleased to announce that it will host:

Webinar: [Developing Offshore Wind in US Waters Part 1: The Planning and Regulatory Framework](#)

Presented by: Brian Hooker of the Bureau of Ocean Energy Management Office of Renewable Energy Programs, Betsy Nicholson of the NOAA Office for Coastal Management, and Joy Page of the US Department of Energy Wind Energy Technology Office

Date/Time: [Wednesday, July 19 Noon US EDT/9 am PDT/4 pm UTC](#)

Description: The deployment of offshore wind energy facilities in US waters has tremendous potential to help the country deliver on its climate change commitments and

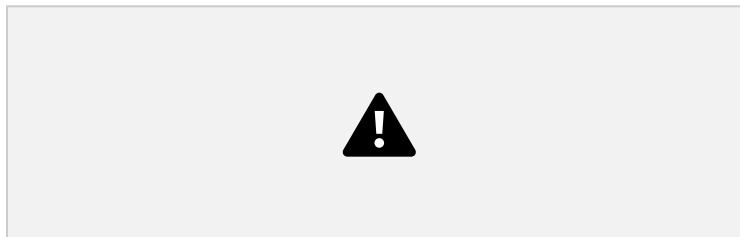
clean energy goals. It is also a reality beginning to take shape with the first commercial-scale facilities beginning construction in 2023 in the Northeast US. In Part 1 of our webinar series on ocean wind energy in US waters, we will explore the historical and policy background and framing behind the US wind energy transition, including an introduction to the planning and regulation processes and the players involved. This webinar will set the groundwork for future discussions exploring offshore wind energy, its future in US waters, and its compatibility and interactions with marine protected areas and other ocean uses.

Host: NOAA National MPA Center and OCTO

Register: <https://attendee.gotowebinar.com/register/2609560438125093214>

The full list of upcoming OCTO live events is below.

Upcoming OCTO events:



Upcoming OCTO events:

NEW WEBINAR!

Webinar: [Developing Offshore Wind in US Waters Part 1: The Planning and Regulatory Framework](#)

Presented by: Brian Hooker of the Bureau of Ocean Energy Management Office of Renewable Energy Programs, Betsy Nicholson of the NOAA Office for Coastal Management, and Joy Page of the US Department of Energy Wind Energy Technology Office

Date/Time: [Wednesday, July 19 Noon US EDT/9 am PDT/4 pm UTC](#)

Description: The deployment of offshore wind energy facilities in US waters has tremendous potential to help the country deliver on its climate change commitments and clean energy goals. It is also a reality beginning to take shape with the first commercial-scale facilities beginning construction in 2023 in the Northeast US. In Part 1 of our webinar series on ocean wind energy in US waters, we will explore the historical

and policy background and framing behind the US wind energy transition, including an introduction to the planning and regulation processes and the players involved. This webinar will set the groundwork for future discussions exploring offshore wind energy, its future in US waters, and its compatibility and interactions with marine protected areas and other ocean uses.

Host: NOAA National MPA Center and OCTO

Register: <https://attendee.gotowebinar.com/register/2609560438125093214>

PLEASE NOTE THE DATE CHANGE FOR THIS WEBINAR!

Webinar: [Strengthening Blue Carbon Solutions in US Ocean Policy](#)

Presented by: Anne Christianson of the Center for American Progress

Date/Time: [Wednesday, July 26, 1 pm US EDT/10 am US PDT/5 pm UTC](#)

Description: The ocean is gaining prominence in climate change policy circles as a tool for addressing the climate crisis. Blue carbon, the carbon captured and stored by marine and coastal ecosystems and species, offers potential as a “nature-based solution” to climate change. However, some blue carbon interventions may not be suitable as a climate mitigation response. This presentation will present results from a recent paper that gives context to numerous blue carbon sequestration pathways, quantifying their potential to sequester carbon from the atmosphere, and comparing these sequestration pathways to point-source emissions reductions. The applicability of blue carbon will be discussed in terms of multiple international policy frameworks, to help individuals and institutions utilize the appropriate framework to reach ocean conservation and climate mitigation goals.

Host: OCTO

Register:

https://us02web.zoom.us/webinar/register/WN_a0VnKmS1STCWR42PGmnoZA

Approach:

The goal of today's meeting is to learn about the project from the US Wind scientific staff.

Cable Routing/Laying/Effects Questions

June 6, 2023, On Site CIB and Virtual

- 1) Construction
 - a) Please describe the methods used/considered
 - i) How did you decide which method to use, can you describe any modeled impacts?
 - ii) Coming ashore in the surf zone
 - iii) Directional boring

- iv) Up the Indian River
 - b) When will the construction take place and how long are temporary impacts planned to be in place? Is there a plan to ensure these temporary impacts are restored to pre-construction conditions?
 - c) What are the anticipated Construction Impacts to fishing, navigation, wetland resources, and SAV
 - d) Will cable construction
 - i) cause smoke (from vessels)
 - ii) Vibration (damage to homes, buildings, other property)
 - e) How will construction impact fly ash storage piles adjacent to the Indian River? Is there any possibility of bank or other destabilization? Has this been studied?
 - f) What is the footprint of the construction impacts? i.e. - some constructions have been reported to be up to 500 m wide 1-3 m deep., up to 4 cables, spacing 10-30 meters between cables (3x water depth); dynamic mixing is usually 6- 8 inches
- 2) Routing
- a) Please describe the proposed route(s) and why they were chosen
 - b) Please talk about what the Company has to say about impacts to potential maintenance dredging for navigation; channel realignments could be constrained or restricted beyond using existing channels.
 - c)
- 3) Sediment
- a) Were sediments related to construction of pit and cofferdams modeled for the directional drilling, or just use one sediment model?
 - b) Is TSS (sediment) from upland inputs? Or resuspension? Mostly resuspension, or inputs from Delaware Bay sucked in through the inlet?
 - c) Some states require more than others re: environmental monitoring (sediment) US Wind do anything beyond particle size in sediment analysis? How will the company monitor sediment (including chemical and physical characteristics and dispersion) disturbance during construction?
 - d) Other existing data: Power plant area study (Wilson and others); legacy sediment - cycling of mercury, nutrients, arsenic, heavy metals. Does US Wind plan to perform a contaminant transport study?
 - e) Are there any potential impacts to groundwater flow? Might the hydroplow cut through any confining unit (could be a local confining unit) that might be present.
 - f) Turbidity/suspended sediment control measures are noted for cable installation, but do not appear to be included in the dredging component. Does the company plan to include sediment control measures throughout the dredging portion of the project as well? Does the company plan to utilize a confined disposal facility to dispose of the dredged material?
- 4) Benthics
- a) Impacts to:
 - i) Horseshoe Crabs
 - ii) Clams, oysters
 - iii) Crabs

- (1) Indian River is a popular spring/summer recreation crabbing area, has the company looked at expected/potential impacts to crabbing including potential short and long term interference with crabbing? If done in winter, how will the cable construction impact crabs that are burrowed into the sediments?

- iv) Finfish

- (1) Striped Bass, Perch, Shad

- b) Will you perform pre- and post-construction environmental (to include benthic organisms, birds, bats, marine mammals, and sea turtles) and fisheries monitoring? If so, do these monitoring plans include the Indian River and Bay?

- 5) Electromagnetic Field Impacts

- a) People
 - b) Blue Crabs/Horseshoe Crabs
 - c) Finfish
 - d) Birds

- 6) Maintenance/Retirement

- a) Does the Company have a Sea Level Rise plan? We expect this to be a recurring issue over the next 50+ years.
 - b) What is the expected/modeled maintenance frequency of the cable in IR and as it comes ashore?
 - c) Does the company have a compensatory mitigation path planned for the permanent impacts to wetlands and SAV resources?
 - d) The information notes that decommissioning is “expected to occur decades after the project goes into operation”. What is the proposed length of time the system is planned to be operational/in place?
 - e) Does the company plan to be the responsible party for decommissioning the cables as well as monitoring aquatic resources post project?

- 7)